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Population trends and school building needs in the Merced city school district

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POPULATION TRENDS AND SCHOOL BUILDING NEEDS IN THE MERCED CITY SCHOOL DISTRICT

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THE PROBLEM OUTLINED

Introduction. Those charged with the administration of the public schools have been confronted with a constantly changing enrollment almost every year since World War II opened the path to a migratory population. This movement of families from one community to another, coupled with the rapid increase in the birth rate, taxes most public school facilities to the limit of their capacities.

The state of California has been the recipient of many of these migratory families. As a result, many of its school systems have been attempting to accommodate an ever-increasing enrollment with facilities which were both antiquated and limited because of inability to build or expand during the depression years and the war period. Double sessions and heavy teacher-pupil ratios prevail in many cosmopolitan areas of the state.

The extent of the increase in population for the state may be more vividly portrayed by an examination of the 1950 Census Reports. These show that in the last decade, 1940-1950, the total population for the state has

increased 51.9 per cent.[1] Likewise, the public and private school enrollments for pupils between the ages of five and twenty-four years, excluding kindergarten, have increased approximately 45.6 per cent.[2]

Although some sections of the state may not have felt the impact of this terrific influx of people, Merced City's population has shown a gain of approximately 48.6 per cent within the same ten year period.[3]

Statement of the problem. The natural result of this increased population was to place an abnormal strain on the Merced City School facilities. In the last ten years the enrollment of the schools in this city has increased from a peak of 1773 to 3586 pupils.[4]

The administrators of Merced City schools, in attempting to provide adequate facilities for the mounting

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1 "Population of California by Counties: April 1, 1950," Preliminary Counts, 1950 Census of Population (Washington, D.C.: Bureau of the Census), p. 6.

2 "Characteristics of the Population of California: April 1, 1950," Preliminary Reports, 1950 Census of Population (Washington, D.C.: Bureau of the Census), p. 16.

3 "Community Labor Market Survey--Merced," Department of Employment (State of California), December, 1950.

4 Merced City Elementary Schools Teacher's Bulletin, 1952-53, p. 7.

enrollments, have in the last three years, with the support of the patrons of the district, financed and constructed six new school buildings. Four of these are additions to the total number of district buildings and have been located at new sites because of the transfer of minor population to different attendance areas. Of the other two, one is a replacement and enlargement of an inadequate building, and the other is a replacement located at a new site to accommodate a shifted zone of attendance.

In spite of this effort, once again for the school year 1953-1954 there are arrangements being made for three more temporary buildings for classrooms, making a total of seventeen temporary structures being used. The overloaded attendance at one school without space for expansion probably indicates that "consideration should also be given to establishing an additional attendance center on the south side of town."[5]

To add to these problems there is a feeling among patrons that added facilities such as cafeterias and multi-purpose rooms should be planned. New constructions always further strain the finances of a school district for equipment and improvement of grounds.

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[5] News item in the Merced Sun-Star, June 9, 1953.

Out of this situation arises a question of just what are the building needs in the Merced City School District as indicated by the population trends? This question resolves itself into other related questions which will be used as a guide for this investigation:

1. What does a study of the community indicate as to its growth within the last ten years and its probable growth?

2. What does the present educational program of the Merced City Schools reveal regarding the optimum usage of the facilities already provided?

3. What are the trends in school enrollment and what future enrollments may be expected within the next six years?

4. Do evaluation scores of present buildings and their utilization indicate a need for additional facilities?

5. What is the recommended school plant as indicated by an analysis of scientific data?

Justification of the study. Many factors have contributed to this increase in Merced City's inhabitants. Some of these factors probably are as follows: (1) the increased birth rates commonly expected during a war period, (2) the abnormal migration of agricultural workers needed for harvesting of the county's crops which were

valued at $90,097,025.00 in 1950,[6] and (3) the re-establishment of a permanent army installation within seven miles of Merced, and the necessity for housing the servicemen's families.

Numerous perplexing problems arise in attempting to present a satisfactory educational program for a fast growing community. Since the investigator is a school administrator within the Merced City School District it shall be to his interest to present research data which will be of value in solving the complex problems created by the mounting enrollment.

Increased numbers of pupils usually point toward a need for expanded facilities. The need for careful planning for future building needs in this particular school district is greatly amplified when it is realized that it has just emerged from a school construction program costing about $1,250,000.00 with $466,000.00 of the amount furnished by a district that is considered impoverished.[7] Further demands for school expansion paid for by additional taxation and greater indebtedness during this period of

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[6] Brochure published by the Merced City Chamber of Commerce, 1951.

[7] Merced City School District records and reports.

fluctuating national taxation might prove a catastrophe if not approached carefully with facts substantiated by scientific research.

> All school-building programs involve relatively large sums of public funds. Wise and economical use of money for buildings is a grave responsibility which rests squarely on the board of education. Almost every community faces both a shortage of school-housing and a shortage of school-building funds. Good business judgment is needed in the solution of this double problem. The way to provide good schools without wasteful expenditures is to plan wisely . . . planning that employs scientific methods must precede the purchase of land for a new school or any decision to erect an addition to an existing school.[8]

Since these pressing problems of the district have not been studied with detailed data at hand, it is the purpose of this study to provide information regarding population trends and school enrollments for future years with housing recommendations so that the planning of classroom facilities, provisions for increases or decreases in the number of teachers, and a host of related problems will take on more vivid meanings.

Method of attack. It has been established that there is a felt need for expansion of facilities in the Merced

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[8] Warren T. White, et al., "American School Buildings," Twenty-Seventh Yearbook of the American Association of School Administrators (Washington, D.C.: American Association of School Administrators, 1949), p. 10.

City School District and emphasis has been given to the importance of planning before attempting to solve existing problems. With these points established, it seems that the method of attack is logically some type of survey.

> Schools and educational institutions can, of course, get along after a fashion for many years without any type of continuing or periodic survey. Sooner or later, however, it will become obvious that a survey, a study program, or whatever it may be called, is essential. The sooner this fact is faced by educators and lay citizens in every state, the sooner will needed adjustments be made in education and schools be prepared to render the services needed by and for our rapidly changing civilization.[9]

What is a school survey? Will such an instrument or device help solve the existing problem?

According to one authority who is experienced in making surveys:

> It is simply a careful, systematic, study of one or more schools, school systems, or educational institutions on a local, state, or national basis to determine trends, present status, and needs, and to attempt to propose steps which, if taken, should result in substantial progress toward attainment of desirable objectives.[10]

This definition of the term "survey" is exactly fitting to the investigator's proposed method of attack. School surveys made up to the present time have been widely

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[9] Edgar L. Morphet, "How to Conduct a School Survey," The School Executive, 67:11-14, April, 1948.

[10] Ibid., p. 11.

varied. Some have been broad and comprehensive, while others have dealt with a single problem.[11]

The method of attack for this problem is to be a self-survey of the Merced City School District, composed of nine elementary schools ranging from kindergarten through grade eight. The following major areas will be explored: (1) the community and its people, (2) the educational program of the Merced City Schools, (3) the school population, (4) the present schoolhousing situation, and (5) the recommended school building program.

Sources of data. Data for the survey were obtained from many sources, the principal ones being the records and reports on file in the offices of the County Superintendent of Schools and the City Superintendent of Schools. Data was also secured from the offices of the Merced City Clerk, the Merced County and City Chambers of Commerce, the City Planning Commission, the United States Census Bureau, the State Department of Public Health, the Merced County Library, and the California State Library.

Informal conferences with the City Superintendent and the building principals of the district proved valuable

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[11] Jesse B. Sears, The School Survey (New York: Houghton Mifflin Company, 1925), p. 4.

in providing specific problems needing investigation and gave much help in interpreting the present educational programs.

Delimitations. As has been pointed out previously, some school surveys have been "broad and comprehensive, while others have dealt intensively with a single problem."[12]

The survey presented in this treatise is confined to a single problem, which is the total classroom needs exclusive of kindergartens of the Merced City School District without designation of their specific locations. It is felt that confining the study to only classroom needs is in harmony with the feelings of the public in general as shown by the following excerpt from reports given at a recent state legislative session:

> Economy-minded legislators, holding that the taxpayer is already supporting too great a burden of education, are calling for a building program of classrooms only, a program eliminating such frills as the multi-purpose room.[13]

Since Merced City School District is dependent upon the state for a greater part of the expense in any

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[12] Sears, loc. cit.

[13] Editorial in the San Francisco Chronicle, August 7, 1952.

building program, it seems logical that a study confined to only classroom needs would be of some value at the present time.

The study is further defined in that the district's school population is principally centered within the city which covers only four of the ninety-two square miles of the district.[14] Data regarding the area outside the city limits was limited due to the fact that available records were incomplete and often lacking in information pertinent to this section. Some compensation was made by the investigator checking birth certificates by addresses rather than their frequency of occurrence within the Merced City hospitals.

It is not felt that these limitations will cause any significant inaccuracy since a great per cent of the area outside the city limits is arid lands and very sparsely settled. Also, six of the nine schools maintained by the district are within the city; two others are in the immediate fringe area.[15]

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[14] Handbook for Elementary Teachers, 1951 (Merced, California, Merced City School District), p. 1.

[15] Loc. cit.

In computing the number of classrooms needed, the local school administrators have recommended a teacher-pupil ratio of thirty-two pupils in grades one through eight.

The scoring of school buildings for adequacy was confined to three since the other six buildings were constructed in the last six years on approved sites and in accordance with plans approved by the California State Department of Education.

CHAPTER II

REVIEW OF RELATED STUDIES

Many school surveys have been conducted since the forerunner, "the New York City School Survey in 1911,"[1] and since their initial appearance as a college training course in Stanford University in 1918.[2] For the most part these have been complete surveys dealing with all aspects affecting school systems or districts, but many others have dealt "intensively with a single problem, such as finance, buildings, organization, or the efficiency of instruction."[3]

Leaders in school surveys. Some of the leaders in school surveys have been G. D. Strayer and N. L. Engelhardt,[4] Jesse B. Sears,[5] John C. Almack,[6] Osman R.

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1 Jesse B. Sears, The School Survey (Boston: Houghton Mifflin Company, 1925), p. 6.

2 Ibid., p. 8.

3 Ibid., p. 4.

4 George Drayton Strayer and N. L. Engelhardt, A School Building Program for the City of Ashland, Kentucky (New York: Bureau of Publications, Teachers' College, Columbia University, 1933), 181 pp.

5 Jesse B. Sears, Stockton School Survey (Stockton, California: Board of Education, 1938), 586 pp.

6 John C. Almack, Survey of Monterey Union High School by Divisions of Schoolhouse Planning (Sacramento, California: California State Department of Education, 1928), 331 pp.

Hull and Willard S. Ford,[7] and Frank W. Hart and L. H. Peterson.[8]

An examination of some of these leaders' procedures and techniques will contribute indirectly to the method of attack for this and other surveys which may be taken by advanced students.

The survey of Sequoia Union High School. Part I of the Almack Survey of Sequoia Union High School[9] seemed somewhat pertinent and related to the current study, and was, therefore, reviewed for its contributing factors.

It had for its purpose the development of a school housing program, and was divided into five sections as follows: (1) utilization of the school plant, (2) growth of the school population, (3) the proposed building program, (4) financing the building program, and (5) solutions for emergency problems.

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[7] Osman R. Hull and William S. Ford, Santa Ana School Housing Survey (Los Angeles: University of Southern California, 1928), 88 pp.

[8] Frank William Hart and L. H. Peterson, A Report of a Survey of Public Education in the Lodi Union High School District (Berkeley, California: University of California, 1947), 243 pp.

[9] John C. Almack, Sequoia Union High School Survey (Palo Alto, California: Stanford University, 1947), 80 pp.

The first three sections of Almack's report were also major areas of exploration for the present study of Merced City Schools, but the latter two areas were replaced by studies pertaining to the present educational program of the Merced City Schools and to the community in general.

An examination of the technique used by Almack in developing his conclusion regarding utilization showed that it was determined by using an area standard of twenty square feet per student in general classrooms, forty square feet for laboratories, and twenty to thirty square feet for the commercial department; and by using a class size standard of twenty-five students in verage daily attendance.[10]

Some similarity exists between his technique and the method to be used in determining the utilization of the Merced City Schools. However, the problem in elementary schools is somewhat simplified by the fact that there is usually a minimum of movement of pupils from one room to another and the teacher-pupil ratio tends to remain constant. This factor simplified to a great extent the problem of computing utilization of the Merced City school buildings with the exception of the one housing the

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[10] Ibid., p. 2.

seventh and eighth grades, which operates with a core curriculum in which there is an exchange of rooms by the pupils.

In estimating probable future growth in student population the Survey of Sequoia Union High School used two methods. Both were alike in that they based future estimates upon past facts, and tend to go back as far for their facts as they wish to go forward with their predictions. The methods used were the percentage of growth and the census method.[11]

The growth section of the survey took up the problem of growth in the high school population from 1946 to 1956. Those used in the predictions were on high school enrollments and attendance from July 1, 1933 to July 1, 1946. These predictions were checked by data on elementary school attendance, birth rates, and housing. Such predictions were determined to estimate as closely as possible future student population, so that the proposed building program would take care of the increases. In this respect Engelhardt writes

> Authorities responsible for the establishment of building programs, or any extension of the school plant are required to think in terms of the entire number of

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[11] Ibid., p. 17.

> school children whom it might be necessary to make provision at anytime included within the scope of the building program.[12]

The above is a brief summary of some of the techniques pertaining to the Sequoia Union High School survey outline, in general, and the procedures and methods used in determining recommendations and conclusions of the study. These methods were uniform and very much in line with those used in other studies.

In this respect Sumption has conceived a school building program as being divided into four areas of exploration: first, the community and its people; second, the educational program the people want; third, the financial ability of the school district; and fourth, the present schoolhousing situation.[13]

For the most part, all school building surveys are governed by the Sumption concept, as will be illustrated by two other surveys.

The Santa Ana School Housing Survey. In the Santa Ana School Housing Survey by Hull and Ford the following

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12 N. L. Engelhardt, A School Building Program for Cities (New York: Teachers' College, Columbia University, 1918), p. 20.

13 M. R. Sumption, "A Self-Survey for Developing a School Building Program," The American School Board Journal, 121:39-40, July, 1950.

major factors were considered: first, the growth and development of the Santa Ana City High School District; second, the evaluation of the present school buildings; third, the financial status of Santa Ana with respect to the support of an educational program; and fourth, the proposed building program.[14]

The Stockton School Survey. The Stockton School Survey by Sears[15] illustrated the utilization of similar methods in determining the building needs of that city's school system. The report presented the results of four extensive studies of the school plant problems. The first had to do with the school and the people;[16] the second, the nature and condition of the school plant;[17] the third presented the use of the school plant;[18] and the fourth proposed a plan for the building program including the financial aspects of the plan.[19]

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14 Hull and Ford, loc. cit.

15 Sears, loc. cit.

16 Ibid., pp. 5-23.

17 Ibid., pp. 513-535.

18 Ibid., pp. 536-547.

19 Ibid., pp. 548-586.

The school building surveys herein outlined are only a few among many; however, they describe the factors that must be considered and investigated before steps can be taken to recommend school building programs. These recommendations are based solely on the data available or a combination of the factual material in the data and the philosophizing of the person conducting the survey. Any deviation or variation in building surveys are usually characterized by methods of approach and measurements used in handling the four major categories previously advanced by Sumption, and not by studies of unrelated factors.[20] The general factors remain constant and demand careful consideration. In conclusion, it might be stated that all building surveys are related indirectly to one another because of procedures required of each.

In this study of Merced City School District expansion problem, the writer proposed to follow the same general outline which governed the above mentioned surveys, while focusing attention on the population trends and the indications thereof, and elimination of the finance study for further research and a separate investigation.

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[20] Sumption, op. cit., pp. 39-40.

Summary.

1. Some of the early leaders in school surveys have been G. D. Strayer and N. L. Engelhardt, Jesse B. Sears, John C. Almack, Osman R. Hull, Willard S. Ford, and Frank W. Hart.

2. The survey of Sequoia Union High School is divided into five sections as follows: (1) utilization of the school plant, (2) growth of the school population, (3) the proposed building program, (4) financing the building program, and (5) solutions for emergency problems.

3. Sumption has conceived a school building program as being divided into four areas of exploration: first, the community and its people; second, the educational program the people want; third, the financial ability of the school district; and fourth, the present schoolhousing situation.

4. The Santa Ana School Housing Survey considered four major factors: (1) growth and development of the Santa Ana City High School District, (2) evaluation of the present school buildings, (3) financial status of Santa Ana with respect to the support of an educational program, and (4) the proposed school building program.

5. Four extensive studies were made in the Stockton School Survey: (1) the school and the people, (2) the

nature and condition of the school plant, (3) the use of the school plant, and (4) a plan for the building program including the financial aspects of the plan.

CHAPTER III

THE COMMUNITY

A study of building needs for the purpose of planning a school plant in any community requires consideration of several community characteristics. The number of school rooms needed, their size and locations, are influenced by population changes and movements, the location of residential areas, transportation facilities, and other factors that are indicative of community character.

Furthermore, the philosophy of community life that is exhibited in everyday living has sufficient means for school building planning. This philosophy may or may not call for the use of community resources as an integral part of the educational program, and thereby have some bearing on the facilities that need to be provided.

Early history of Merced City. In any story about Merced City, its name and the origin of the name must be linked with the history of the area within which the city is located, and the county's beginning.

The name "Merced," now the name of the county and the city, had its origin long before California became a part of the United States, and forty-four years prior to its admission as a state (1850).

In the early 1800's the few scattered settlements in California were under Mexican rule and ranged along the coast from the northern border to the Mexican line.

The Sierra Nevadas and the valleys lying between the Sierras and Coast Range were the hunting grounds and the home of the native population, Indians. These tribes were many, and while their facial and physical characteristics were similar, they were different in tribal names, languages, and in some respects, in customs.

These Indians roved over the valleys in search of game and in their roving they crossed the Coast Range through Pacheco and other passes into the coastal valleys. There they found cattle, sheep, and horses belonging to the Mexicans. These were tempting to the Indians and the renegades of the tribes began forages on the stock and eventually became such a menace that the settlers appealed to the government for protection and redress.

In the summer of 1806 the Mexican government sent a company of soldiers from the Presidio of San Francisco, led by Gabriel Moraga, to either capture or disperse the marauding Indian bands. This company crossed the Coast Range through the pass from Livermore Valley, perhaps via what is now known as "Patterson Pass."[1] This area in the

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1 History of Merced County, California, 1881 (San Francisco, California: Elliott and Moore, Publishers, 1881), p. 85.

summer was a dry barren plain populated by wild game, coyotes, jack rabbits, and various birds and animals which fed on the grasses produced by winter rains.

When the soldiers from the Presidio entered the valley, it was during the season of the year when water was scarce and all the streams flowing from the Coast Range were dried water courses. Both men and horses became almost famished because of the heat and dryness of the air.

In their long journey, water was the most precious thing they needed and after traveling all day over this arid land, they were overjoyed to arrive at a river which history records was the present Merced River. They knelt and drank of its clear, cool water, and in thanksgiving to God they exclaimed, "El Rio De Los Mercedes,"[2] or "River of Merced." Thus was the river named.

Later, when Americans came into the valley, the earliest explorer gave the river the name "Merced," which was their interpretation of the long Spanish name which means "River of Mercy."

When Merced County was organized in 1855,[3] being separated from Mariposa County, the county was named after

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2 History of Merced County, loc. cit.

3 Ibid., p. 86.

the river Merced and a county seat was designated at the ranch of Turner and Osborne on Mariposa Creek, about eight miles distant from the present city of Merced. Later, in 1857, the county seat was moved to the town of Snelling and in this same year the historic Snelling Court House was built.[4]

In 1870, when the Central Pacific Railroad constructed its line down the San Joaquin Valley, they laid out townsites on lands which had been ceded to the company by the federal government and named one of the townsites Merced. By 1872 the county seat was moved to this new railroad town, and thus was the beginning of the present city.

The pioneers of this city visioned what could be developed if water were available to bring the thousands of fertile acres under cultivation. To give impetus to this idea the Crocker-Huffman Company in 1882 began construction on an irrigation system which was completed, and later, after thirty-seven years of private operation, was sold to the Merced Irrigation District in 1919.[5]

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[4] Ibid., p. 87.

[5] Industrial Brochure of Merced California, 1952 (Merced, California: Merced City and County Chambers of Commerce, 1952), p. 2.

From this early beginning, Merced City has grown to be a thriving metropolis of 15,278 with an estimated 2,500 additional people located within the fringe area.[6]

Population growth and composition. Data regarding the population of Merced City as shown by the past seven federal censuses are given in Table I, together with an estimated population for 1960 and 1970. This table shows that Merced has had a rather irregular growth in population over a period of sixty years.

The average per cent of growth during this sixty year period was 42.6 per cent. The greatest percentage of gain in population was from 1920 to 1930 when the city grew from 3,974 to 7,066, an increase of 77.8 per cent. According to local authorities this remarkable growth was caused by the successful completion of the $16,000,000.00 Merced Irrigation District Project, which resulted in a large migration of residents to this area from Inyo County, where they were experiencing water difficulties. The largest increase was between the years 1940 and 1950 when the amount of increase was 5,143. This was probably due to the establishment of Castle Air Field as a permanent United States Air Force Base and the normal expected influx

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[6] Ibid., p. 3.

TABLE I

POPULATION OF MERCED BY DECADES, 1890 THROUGH 1950, AND ESTIMATED POPULATION FOR 1960

Census Year	Population	Change from Preceding Census	
		Amount	Per cent
1890	2,009	--	--
1900	1,969	-40	-2.0
1910	3,102	1,133	57.5
1920	3,974	872	28.1
1930	7,066	3,092	77.8
1940	10,135	3,069	43.4
1950	15,278	5,143	50.7
1960*	21,776	6,508	42.6
1970*	31,052	9,276	42.6

Source: The United States Census Bureau, 1890-1950

* Estimated by taking an average per cent of increase (42.6) for the previous seven decades and interpolating.

of military families.

By using an average percentage gain of 42.6 per cent for the sixty year period, it is estimated that by 1960 the population of Merced will be 21,776 and similarly 31,052 in 1970.

Table II shows the distribution of Merced's population by age groups according to the United States Censuses of 1930, 1940, and 1950. The total population of the city continued to increase over the twenty year period from 7,061 in 1930 to 10,135 in 1940 and 15,278 in 1950. In spite of the depression years of the 1930's when the normal expectation would be for a drop in the total number of under five age group, Merced's population, within this age span, increased from 639 to 725.

The war years 1940 to 1950 show normal results of the high birth rates prevalent during this period when the under five age group increased from 725 to 1,984, or 12.9 per cent of the total population. Barring unexpected migration this large number of children under five years of age shows the challenge extended to the elementary school officials in preparing and planning necessary facilities to accommodate this terrific increase.

The group twenty-five to forty-four years of age continues through 1940 and 1950 to be the greatest per cent

TABLE II

DISTRIBUTION OF POPULATION IN MERCED BY AGE GROUPS, 1930, 1940, AND 1950

Age Group	1930 Census		1940 Census		1950 Census	
	Number	Per Cent of Total	Number	Per Cent of Total	Number	Per Cent of Total
Under 5	639	9.1	725	7.2	1,984	12.9
5 - 9 years	686	9.7	738	7.3	1,361	8.9
10 - 14 years	533	7.5	794	7.8	952	6.2
15 - 19 years	561	7.9	858	8.5	956	6.3
20 - 24 years	597	8.5	894	8.8	1,215	8.0
25 - 44 years	2,424	34.3	3,463	34.2	5,023	32.9
45 or over	1,621	23.0	2,663	26.2	3,787	24.8
Totals	7,061**	100.0	10,135	100.0	15,278	100.0

Source: Booklets 1940 and 1950, United States Census of Population, United States Department of Commerce, Bureau of the Census, Washington 25, D. C., p. 102 (1940) and p. 85 (1950).

* To nearest tenth.

** Total population in 1930 was 7,066. This included unknown age.

of the total population--34.3 per cent in 1930, 34.2 per cent in 1940, and 32.9 per cent in 1950. Although there was a slight decrease of 1.1 per cent of the number of inhabitants from twenty-five to forty-four years of age in 1940 from that of 1930, and 1.3 per cent in 1950 from 1940, this does not necessarily indicate a tendency of this group to migrate. It is that the necessary advent of men in this age classification into the armed forces would naturally result in a slight decrease. The fact that this age group continues to be the greatest single per cent of the total population indicates a continued fairly stable city population.

Residential growth. Table III shows the number and cost of residences constructed in Merced, by years, from 1947 through 1952. The investigator was unable to secure residential constructions prior to 1947 because construction in the city was not controlled by the issuance of building permits before this date.

A total of 1,343 residences were constructed during the six year period from 1947 through 1952. The total cost of the dwellings was $9,377,419.00, and the average cost per unit for the same period was $6,982.00. The average cost per unit constructed in 1952 was $7,799.66.

TABLE III

NUMBER AND TOTAL COST OF NEW RESIDENCES
IN MERCED BY YEARS, 1947-1952*

Year	Number	Total Cost	Average Unit Cost
1947	259	$1,077,114	$4,158.74
1948	201	1,036,400	5,156.22
1949	238	1,552,425	7,371.53
1950	286	1,972,976	6,898.87
1951	299	2,332,098	7,799.66
1952	160	1,406,406	8,790.04
Totals	1,343	$9,377,419	$6,982.44

* Necessity of getting permits not strictly enforced before 1947, therefore limitation is to these years.

In Figure 1 are shown the location of new residences constructed in Merced from 1947 through 1952. The Figure also shows the location of seven elementary schools within or bordering the city limits plus the individual and group housing units constructed by the county.

Large concentrations of new homes are evident in the northwestern part of town near John C. Fremont School, in the northeastern part near Charles Herbert Wright and Herbert Hoover Schools, and in the southwestern section near Margaret Sheehy School. Lack of new construction is noted in the older section of town near the Joseph Le Conte and John Muir Schools.

As the entries were made by the investigator, it was noticeable that the town's population was moving rapidly toward the northeast since the one-time vacant area to the northwest was being quickly absorbed and further expansion was limited by Bear Creek which acted as a natural boundary.

Major industries. Although mining and lumbering are to some extent major industries of the area surrounding Merced, the principal industry is agriculture. The city itself serves as the major retail center, since the neighboring towns within the county are quite small.

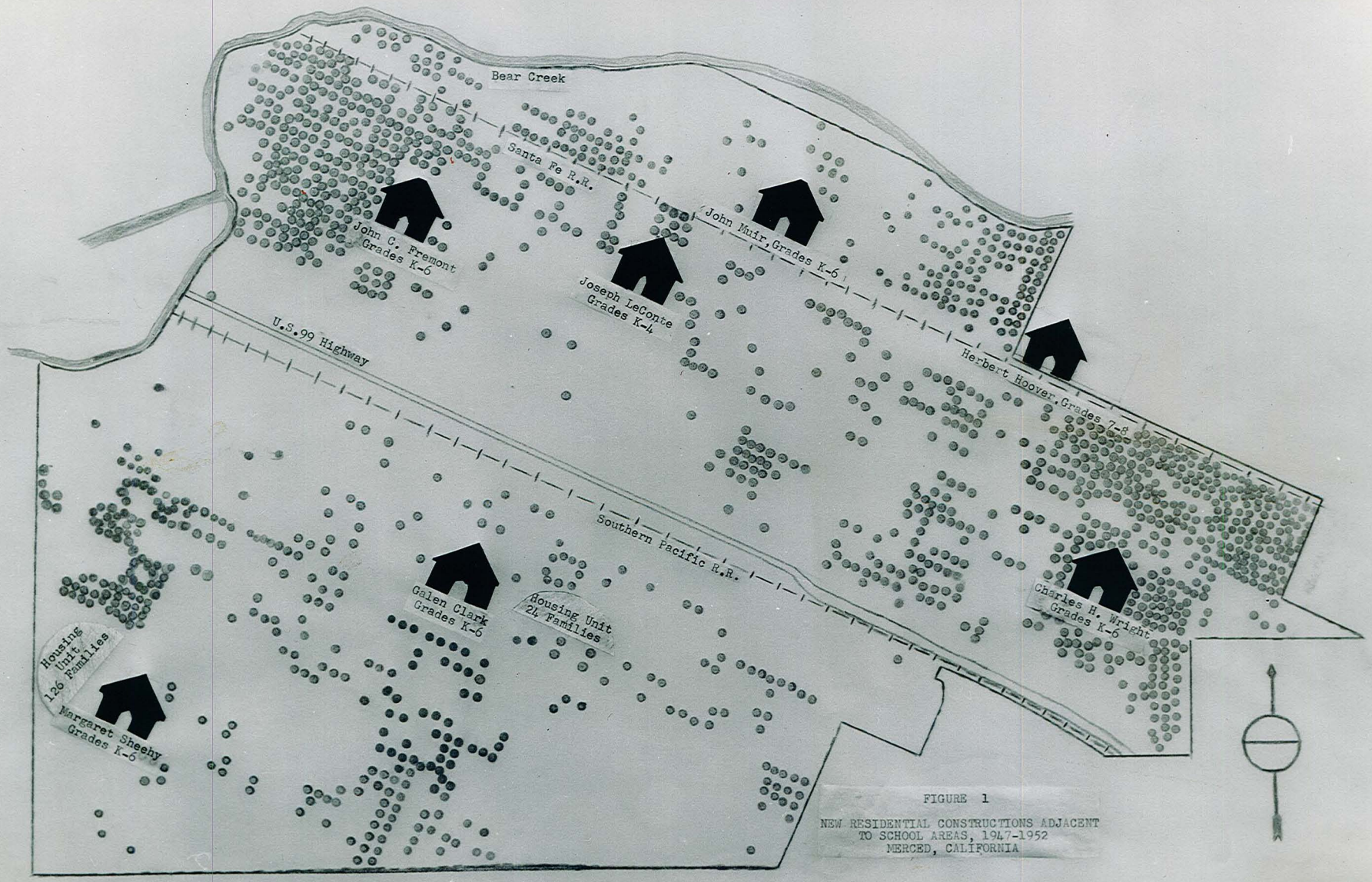

FIGURE 1

NEW RESIDENTIAL CONSTRUCTIONS ADJACENT
TO SCHOOL AREAS, 1947-1952
MERCED, CALIFORNIA

Table IV shows the extent of the farmable land area and the valuation of the crops for the county during the year 1950. The eighteen principal crops grossed a total of $83,121,869.00 on a total acreage of 1,100,129 acres. According to statistical data supplied by the Merced County and City Chambers of Commerce an additional income of $6,976,156.00 from minor crops was reported for the same year, making a total income of $90,097,025.00 for all crops.

Employment. According to a labor survey conducted in July, 1950, covering Merced City and the industrial area included within a two-mile radius, there was a total of 11,100 employed and only 435 unemployed, of whom two hundred were women.[7] It is worthy to note that these employment figures do not include those employed at Castle Air Force Base, located seven miles north of Merced. This base is estimated by some to employ four hundred people from Merced and its fringe area.

Table V shows a total of 10,665 employed in non-agricultural industry with 4,370 in the wholesale and retail trade business. Two industries which show seasonal

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[7] Community Labor Market Surveys, State of California, 1950 (Sacramento, California: Department of Employment Research and Statistics, 1950).

TABLE IV

MERCED COUNTY'S DOLLAR CROPS IN 1950
MERCED COUNTY, CALIFORNIA

Crop	Total Value	Total Acreage
Alfalfa	$ 8,730,730	104,207
Barley	2,137,629	57,804
Cotton	5,988,850	19,630
Permanent pastures	1,961,645	56,047
Pasture	1,818,173	808,077
Sweet potatoes	1,901,250	6,734
Cantaloupes	1,564,800	4,665
Tomatoes	1,350,035	2,330
Almonds	1,335,000	7,187
Figs	3,102,500	9,284
Grapes	6,982,572	17,213
Peaches	4,150,462	6,261
Nursery stock	1,585,750	700
Dairy cattle (including butterfat and cattle sold to butcher)	10,153,275	
Beef cattle	10,225,000	
Sheep	1,181,250	
Turkeys	7,517,968	
Chickens	2,464,980	
Sum Total	$83,121,869	1,100,129

Source: Agriculture and Industrial Brochure published by the Merced City Chamber of Commerce.

TABLE V

NON-AGRICULTURAL EMPLOYMENT AND SEASONALITY
IN MERCED, CALIFORNIA, 1950

Industry	Non-agricultural Employment				
	July 1950	Seasonal Fluctuation			
		High		Low	
		Number	Month	Number	Month
Mining	0	--	--	--	--
Construction	1,000	1,210	June	800	Feb.
Manufacturing	2,175	--	--	--	--
Food and kindred products	1,400	1,525	Aug.	200	Jan.
Transportation, communication, and utilities	220	--	--	--	--
Wholesale and retail trade	4,370	--	--	--	--
Finance, real estate, etc.	100	--	--	--	--
Service	2,000	--	--	--	--
Government	800	--	--	--	--
Total	10,665				

Source: Community Labor Market Survey, Merced, 1950.

fluctuations are the manufacture of food and kindred products and construction work. The peak employment in the manufacturing of food and kindred products was 1,525 in August with a seasonable low of two hundred in January. Construction employment shows a high of 1,210 employees in June and a low of eight hundred in February.

Transportation facilities. Air transportation is available at Merced's modern municipal airport located only two miles southwest of the central part of town. There are four regular scheduled flights daily, two north to San Francisco, and two south to Los Angeles.

Railway transportation is easily accessible since both the Southern Pacific and the Santa Fe railroads have passenger and freight service available within walking distance of town. The Southern Pacific has three passenger trains each way daily and the Santa Fe four.

In addition to air travel and railway service, the city is served by two bus lines, the Greyhound and the Santa Fe which operate over the four-laned modern state highway number 99. Transportation to Yosemite National Park, for which Merced is termed the "gateway," may be secured from the Curry Company transportation line.

Passenger service within the city is given by hourly bus service and four taxi companies.

Trucking facilities for short or long distance hauling is easily obtained through the thirty-two truck lines within the county.

Recreational, educational, religious, and social facilities. Merced has many organizations which provide ample recreational, educational, social, and religious programs. The extent and diversity of these programs is evidenced by its twelve service clubs, thirty-one fraternal organizations, thirty Boy Scout units, twenty-three churches, seven sport clubs, nine elementary schools and one large high school, and a county public library with two major distribution centers.[8]

The public recreational program is further augmented with the availability of Applegate and McNamara Parks, Yosemite Lake, Merced Women's Clubhouse, the Fish and Game Clubhouse, Merced Golf Range, and three theaters plus two drive-in theaters.

Applegate Park is well equipped with recreational facilities among which are its beautiful rose garden, a well equipped zoo, and well maintained picnic grounds. McNamara Park has soft ball diamonds and a public swimming

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[8] Records at the Merced City and County Chamber of Commerce, Merced, California.

pool. Lake Yosemite, a fresh water reservoir covering 7,425 acres, is open free to the public for sail and speed boating, swimming, and picnicking.

Merced has one daily paper, the Merced Sun-Star, which has a circulation of 10,555. In addition, there is one weekly paper, the Merced Express, which has a circulation of 1,365. One radio station, KYOS, helps to add much to the civic, recreational and cultural life of the community.

To care for the health of its citizens, Merced has the facilities and staffs of the Merced county hospital and county health departments. The county hospital has 105 employees and can care for a maximum of 244 bed patients. There is also a private hospital, within the city limits, with a fifty bed capacity and maintained by fifty-three employees. The services of twenty-one practicing physicians and surgeons may be obtained when necessary.

Summary.

1. In 1870 the Central Pacific Railroad laid out the townsite of Merced City and it was designated a county seat in 1872.

2. The Crocker-Huffman Company in 1882 began construction on an irrigation system which was completed,

and after thirty-seven years of private operation was sold to the Merced Irrigation District in 1919.

3. Merced City's population as reported by the last seven federal censuses has shown a rather irregular increase from its 2,009 in 1890 to its 15,278 in 1950.

4. The average per cent of growth for the city during the period 1890 through 1950 was 42.6 per cent with the ten year period 1920 to 1930 showing the greatest increase, 77.8 per cent.

5. The largest increase of population for Merced was between the years 1940 and 1950 when it increased 5,143.

6. It is estimated that by 1960 the population of Merced will be 21,776, and in 1970 it will be 31,052.

7. The distribution of under five year olds in Merced, as shown by the censuses of 1930, 1940, and 1950, was 639, 725, and 1,984, respectively.

8. A total of 1,343 residences costing $9,377,419.00 were constructed in Merced during the period 1947 through 1952.

9. Large concentrations of new homes constructed from 1947 through 1952 are evident in the northwestern, northeastern, and southwestern sections of Merced.

10. The principal industry of Merced is agriculture which in 1950 grossed a total of $83,121,869.00 for the

eighteen principal crops.

11. In July, 1950, there was a total of 11,100 employed people and only 435 unemployed within a two mile radius of Merced.

12. Merced's non-agricultural industry employed 10,665 people in 1950 with 4,370 in the wholesale and retail trade business.

13. Merced's transportation facilities include transportation furnished by the United Air Lines, railway transportation furnished by the Southern Pacific and Santa Fe railroads, passenger service by two major bus lines, trucking service by thirty-two local truck lines, and within the city, transportation by four tax companies and one bus company.

14. The extent and diversity of the recreational, educational, religious, and social programs are evidenced by many organizations, among which are the following: twelve service clubs, thirty-one fraternal organizations, thirty Boy Scout units, twenty-three churches, seven sporting clubs, nine elementary schools, one large high school, and a county library with two major distribution centers.

CHAPTER IV

THE EDUCATIONAL PROGRAM OF THE MERCED CITY SCHOOLS

The quality of the educational product of any school, or of any school system, is determined by many factors, among which are (1) the school staff, including both the professional and non-professional personnel; (2) the program of instruction, including all phases of learning activities that contribute to the whole curriculum; and (3) the school buildings and all other physical facilities that make possible the efficient and effective functioning of the educational program.

This study is concerned primarily with school buildings, their utilization, and their adequacy in implementing the educational program. Since the minimum use-expectancy of a school building is fifty years,[1] a building of poor design and inadequate facilities will affect adversely the lives of thousands of children for many, many years. This being true, school authorities face the inescapable responsibility of making optimum use of all present facilities and of planning future buildings for maximum educational service to youth and to the community in which they live.

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[1] Walter S. Monroe, editor, Encyclopedia of Educational Research (New York: The Macmillan Company, 1950), p. 1114.

This chapter presents the principal aspects of the educational program of the Merced city public schools and suggests the relationship between adequate classroom facilities and a functional educational program.

Early development of the Merced city schools. Merced City was set off as a school district in 1872, but owing to some informality the district was not legally created and in September a school was started by private subscription.[2] This early school consisted of two teachers, a Mr. Geis and Miss Chapman, one for the higher grades and one for all the others.

Such was the extent of the school program offered in Merced until June 1, 1874, when a plan for a public school was adopted. It was decided a brick building would be constructed at what is now the corner of M and 22nd Streets, and would accommodate a total of three hundred pupils in its six rooms. The total cost was estimated to be $20,000.00.[3]

This building was considered adequate for the elementary school children until it was replaced by an eight

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[2] N. Elliott and Moore, publishers, History of Merced County California (San Francisco, California, 1881), p. 112.

[3] Ibid., p. 113.

room building in 1903 which was designated as John C. Fremont School. Because of an increase in enrollment an additional four room building was added nearby on the same site in 1908 and was designated as Joseph LeConte School.

Further increase in enrollments plus the expansion of the town created conditions demanding further facilities. Therefore, in 1920, the present Galen Clark School with its twenty classrooms was constructed at 13th and M Streets. The construction of this school did not sufficiently serve the needs of the community, so John Muir School with its seventeen classrooms was constructed in 1921 at 26th and J Streets.

The educational usage of these four buildings showed the Joseph LeConte and John C. Fremont Schools accommodating grades one through four; the Galen Clark School, grades one through five; and the John Muir School serving children of grades five through eight.

From this meager beginning in 1874 the Merced city public schools have continued to expand and increase until at the present time there are a total of nine different schools with permanent classroom facilities totaling eighty-eight, exclusive of kindergartens, which housed 3,598 children during the 1952-1953 term.

Organization of schools. Because the city of Merced operates as a chartered city, the elementary schools have been officially designated as the "Merced City School District," with a board of education of five members, three elected for four year terms, and two for two year terms. The city school system is composed of nine elementary schools located in various areas of the rather large school district.

Within this district of approximately ninety-two square miles is the city of Merced with a population of 15,278. The city comprises about one fourth of the school district, and furnishes approximately three fourths of the district's enrollment.[4] Three schools are located outside the city limits. One of these which borders the city boundaries, the Herbert Hoover School, is filled largely with children residing within the city.

Of the nine schools in the city school district, six enroll children from kindergarten through the sixth grade. Two are designated as neighborhood primary schools, one of which serves pupils from kindergarten through the fourth grade, and one serves pupils from the first through the

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[4] Records of the city schools' Superintendent.

third grades. The ninth school, Herbert Hoover, houses grades seven and eight.

Six of the nine schools are of recent construction and have modern conveniences and equipment. Three of the buildings are quite old but have been renovated and are in the process of being furnished with modern equipment. Five of the schools have temporary buildings which are used as cafeterias and classrooms.

There are 114 teachers, ten consultants or special teachers, four supervising principals, four teaching principals, and a superintendent. There are about twenty-five non-certificated employees, making a total of 158 district employees in all. Ten buses operate over the ninety square miles of rural territory serving the minority of the school population who reside outside the city limits.

Summer school. According to the Education Code of California, "the governing body of any elementary school district may establish and maintain, . . . special day classes."[5] With this authority the Merced City Board of Education has maintained a summer school of five week duration for the last three years.

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[5] California Education Code, 1949, Chapter 7, Article I, Section 8951, page 283.

The program offered by the summer school has proven popular and valuable as evidenced by the increase in the initial enrollment of four hundred to eight hundred in 1953. The work given has been in several different areas among which is training in the tool subjects, i.e.: reading, writing, arithmetic, history, language, and spelling. Library reading, story hour activities, science, physical education, vocal music, rhythms and folk dancing, arts and crafts are also offered.

The purposes of summer school instruction have been wide and varied; however, that of Merced has been offered to satisfy three main groups of students: (1) those needing some extra study and help to successfully cover the course of study, (2) those desiring to enrich their school work and make the summer months more profitable, and (3) those wanting to participate in a variety of recreational activities.[6]

Materials and methods of instruction. It requires but little thought to realize that the manner in which pupils are taught has a very important bearing on the type of classroom space that a school needs. When pupils sit in

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[6] Records of the City Superintendent.

straight rows, read from books and recite, they take very little classroom space or special facilities. On the other hand, if they engage in a wide variety of activities including free reading in a library corner, art work at an easel or on a frieze, dramatization in open space in front of the classroom, or other activities which are common to a modern program of education particularly at the elementary levels, classrooms must be considerably larger or else the pupil-teacher ratio must be lowered. While the so-called unit-approach method of instruction is by no means universal in this country, it is becoming increasingly common, and elements of it are frequently used in schools which consider themselves, as Merced does, to be conservative and a "middle-of-the-road type." Because of these modern trends which are followed to some extent in the elementary schools in Merced, it would be unwise, in planning school plants of the future, to think in terms of classrooms not adapted to the newer trends of instructional activity.

Modern education is also marked by the use of a greater number and a greater variety of reading materials. These materials include many supplementary books, books for research and for free reading, pamphlets, and pictures. To provide these teaching materials, Merced schools below

the seventh grade, have established a central library with weekly deliveries and pick-up services. This central library has an extensive accounting system for books and materials placed in all classrooms within the system and is under the direction of a full-time librarian. Additional materials including audio-visual aids may be received weekly on a borrow basis by each classroom teacher from the Merced County Library. The seventh and eighth grade school, Norbert Hoover, is served by its own library which also provides reading rooms and is administered by a full-time librarian. In each classroom, spaces for limited room libraries, reference materials, and display materials are provided.

Future planning of classrooms in the Merced city schools must be cognizant of this arrangement for distribution of materials and its implications of the need for storage and display space.

Class instruction for schools below the seventh grade in Merced is under the direction of one teacher with the children remaining stationary as far as room assignment is concerned. This method of instruction adds greatly to the extent of utilization of available space. However, the seventh and eighth grade school is organized with a core curriculum plan of instruction in which the

children remain in one room with a teacher for three consecutive periods of the day and then go into special rooms under other teachers for the remainder of the time. Full classroom utilization is difficult to obtain under a system using the core curriculum plan. Therefore, in planning additional classrooms for this type of school it must be realized that 100 per cent utilization is almost impossible to attain.

Auxiliary services. The Merced city schools, like many other schools of the country, realize that they have responsibility in the field of health. According to one authority,

> The school has a triple responsibility in the field of health--to build or promote the health of children, to protect them from disease and ill health, and to aid in securing the prompt correction of such physical defects and illnesses as exist or develop.[7]

With this responsibility in mind the school authorities have made arrangements with the Merced County Health Department and the Merced County Schools Department for the services of an Audiometrist, a Dental Technician, and for medical services normally supplied by county health departments. These outside health services are

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[7] C. E. Turner, School Health and Health Education (Saint Louis: The C. V. Mosby Company, 1952), p. 22.

supplemented with two district hired nurses who rotate from one school to another on regular schedules subject to immediate change in case of emergency. The employment of these personnel would normally indicate additional school room needs. However, such is not the case in Merced schools since each school is now equipped with a large nurse's room and sufficient spaces for consultations, conferences, or examinations.

Further auxiliary services are provided by the employment of a full-time guidance, attendance, and welfare director, two curriculum coordinators, a speech correctionist, a psychologist, a music consultant, and an art consultant. These personnel create no further need for space since they operate from the Central School Administration Building where offices are available.

Community use of school facilities. Throughout the nation there is a widespread movement toward greater use of school facilities by community groups.[8] Community use is made of many of the school buildings in Merced. Auditoriums are made available for meetings of various groups; for use of the city as election centers; for girl

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[8] Monroe, op. cit., p. 1116.

and boy scout organizations. Classroom space is made available to two major adult evening classes sponsored by the Merced Union High School. The school grounds and buildings are used throughout the year by the City Recreation Department for community recreational activities.

The implications of widespread community use of school physical facilities are usually many; however, past experience in Merced has shown present facilities to be serving adequately without any evidence of a need for further expansion.

Summary.

1. Merced City was set off as a school district in 1872, but it was not until June 1, 1874, that the first public school house was constructed at 22nd and M Streets.

2. This original building was replaced in 1903 with an eight room structure.

3. The present Joseph LeConte School was constructed in 1908, the Galen Clark School in 1920, and the John Muir School in 1921.

4. By 1953 the Merced city schools have increased to nine in number with classroom facilities of eighty-eight permanent rooms, exclusive of kindergartens.

5. The school district of Merced has been designated as a City School District covering an area of approximately ninety-two square miles.

6. School personnel now consist of 114 teachers, ten consultants or special teachers, four supervising principals, four teaching principals, a superintendent, and about twenty-five non-certificated employees.

7. The Merced City Board of Education has authorized the establishment of a five week summer school for the last three years, which has proven popular and has enrolled from four hundred to eight hundred students each year.

8. Modern methods of instruction predominate in the Merced city schools.

9. A central library with delivery service and a full-time librarian control the distribution of books and instructional materials for grades one through six.

10. The seventh and eighth grade school has its own library staffed by a full-time librarian.

11. The plan of instruction for all grades below the seventh is the assignment of one teacher to a particular class all day.

12. The seventh and eighth grade school instruction is given under a core-curriculum plan.

13. School medical services are provided by arrangements with the Merced County Health Department, the Merced County Schools Department, plus the services of two district hired nurses.

14. Additional auxiliary services are available through a school guidance, attendance, and welfare director, a speech correctionist, a psychologist, a music consultant, an art consultant, and two curriculum coordinators.

15. Community demands for use of school facilities are not considered broad in scope although the auditoriums are frequently used for various group meetings, two classrooms are used for adult evening classes, and the grounds are consistently used by the City Recreation Department.

CHAPTER V

THE SCHOOL POPULATION

Both the size and distribution of school population are significant factors in planning the classroom needs of a school plant. Since present practices in school building design and construction usually result in structures that may be used for several years, it is especially important in planning a building program to consider probable enrollments.

Public school enrollments are directly influenced by quantitative population trends and birth rates. These and other factors upon which they depend were studied by the investigator and constitute the basis upon which school population estimates were made.

The distribution of school population is determined to a large extent by the pattern of residential areas that exist within the community concerned and upon the trend in population movement that exists. The trend in the distribution of school population is indicated roughly by enrollment trends in individual schools, provided their attendance district lines have not been changed.

Trends in general population. Table VI shows the total population for the United States by decades from 1790 to 1950, and the actual and percentage increase for each such decade together with estimates on each of these items for 1960. It will be observed that the largest per cent of increase, 41.3, took place between 1780 and 1790 and that each census period between 1790 and 1860 showed a gain of approximately one third over the preceding decade. Beginning, however, in 1870, the percentage increase gradually declined until 1930, when it was only 14.8 per cent. During the 1930's the ratio of increase declined still further, the 1940 population being only 7.2 per cent greater than that of 1930. In 1939 the percentage took an upward swing for the decade of 1940-1950, when it increased 14.2 per cent, which was almost double that of the previous decade. The population of the United States was 150,697,000 in 1950, which represents an average increase of 15.7 per cent for the last fifty years. Using this average as a basis, it is predicted that by 1960 the population will be 174,356,000.

Table VII, page 57, shows the total population of California and Merced County by decades from 1900 through 1950, and the per cents of increase for each decade, together with an estimated population for the year 1960.

TABLE VI

POPULATION, AMOUNT OF INCREASE, AND PER CENT OF INCREASE, UNITED STATES, 1790-1950

Year	Population (Thousands)	Increase (Thousands)	Decennial Per Cent Increase
1790	3,929	1,148	41.3
1800	5,308	1,379	35.1
1810	7,240	1,931	36.4
1820	9,638	2,399	33.1
1830	12,866	3,228	33.5
1840	17,069	4,203	32.7
1850	23,260	6,191	36.3
1860	31,502	8,242	35.4
1870	39,904	8,402	26.7
1880	50,262	10,358	26.0
1890	63,056	12,794	25.5
1900	76,129	13,073	20.7
1910	92,627	16,138	21.2
1920	107,190	14,923	16.2
1930	123,091	15,901	14.8
1940	131,954	8,863	7.2
1950	150,697	18,743	14.2
1960*	174,356	23,659	15.7

Source: Walter S. Monroe, editor, Encyclopedia of Educational Research (New York: The Macmillan Company, 1950), p. 850.

* Interpolated by using the average per cent gain for the last fifty years, 15.7.

TABLE VII

POPULATION, AMOUNT OF INCREASE, AND PER CENT OF INCREASE, CALIFORNIA AND MERCED COUNTY 1900-1950

Year	California Population	Per Cent of Increase	Merced County	Per Cent of Increase
1900	1,485,053	22.4	9,215	14.0
1910	2,377,549	60.1	15,148	64.4
1920	3,426,861	44.1	24,579	62.3
1930	5,677,251	65.7	36,748	49.5
1940	6,907,387	21.7	46,988	27.8
1950	10,490,070	51.8	69,780	48.7
1960*	15,137,171	44.3	100,832	44.5

Source: United States Bureau of Census, Washington, D. C.

* Interpolated from the average per cent gain for the last fifty years, California, 44.3 per cent; Merced County, 44.5 per cent.

It can be observed that the greatest per cent of increase for the county was for the decade 1900-1910, 64.4 per cent. The state showed its greatest percentage of increase during the years 1920-1930, when it gained 65.7 per cent. Further observation of the statistics presented shows the state and county over the fifty year period have shown fairly consistent growth, the state increasing from 1,485,053 to 10,490,070 and the county from 9,215 to 69,780. By interpolating with the average per cents of gain, it is predicted the state will reach 15,137,171 by 1960 and the county 100,832. The prediction for the state corresponds very close to the prediction of the United States Census Bureau, which estimated the state would have fifteen million inhabitants by 1960.[1]

Trends in birth rates. Table VIII shows the birth rates per one thousand of population in the United States and the number of babies born for the years 1939 through 1947. Beginning in 1939 the birth rate--17.3 per one thousand--began to increase and continued to increase, with the exception of 1945, until 1947. At this time it attained the highest in several years, 26.2 per thousand.

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[1] News item in the Merced Sun-Star, January 20, 1953.

TABLE VIII

BIRTH RATE PER ONE THOUSAND POPULATION AND NUMBER OF BABIES BORN IN THE UNITED STATES BY YEARS 1939 THROUGH 1947*

Year	Birth Rate	Babies Born
1939	17.3	2,265,000
1940	17.9	2,360,000
1941	18.9	2,513,000
1942	20.9	2,809,000
1943	21.5	2,935,000
1944	20.2	2,795,000
1945	19.6	2,735,000
1946	23.3	3,260,000
1947	26.2	3,730,000
1948 (est.)	22.0	3,000,000

* Walter S. Monroe, editor, Encyclopedia of Educational Research (New York: The Macmillan Company, 1950), p. 850.

According to reports the birth rate in 1950 was 23.5 per thousand which would still be high when the low in 1939 is used for comparison.[2]

Trends in school enrollment. Total enrollments and enrollments by divisions of the school system in Merced for the twenty year period, 1933-1953, are shown in Table IX. This table shows a continuous increase in total enrollments for the twenty year period, with the exception of slight decreases during 1936-1937, 1942-1943, and 1943-1944 school terms.

Likewise, the first grade enrollments show continuous increases with the exception of the 1936-1937, 1938-1939, 1942-1943, and 1951-1952 terms. The per cent of survivals show that 77.1 per cent of pupils in the first grade go to the second; 95.8 per cent of the second grade go to the third grade; 91.5 per cent of the third grade go to the fourth grade; 97.7 per cent of the fourth grade go to the fifth grade; 98.2 per cent of the fifth grade go to the sixth grade; 101.3 per cent of the sixth grade go to the seventh grade; and 91.8 per cent of the seventh grade go to the eighth grade.

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[2] United States Census Bureau, Washington, D. C.

TABLE IX

ACTUAL ENROLLMENTS IN MERCED CITY SCHOOL DISTRICT,
1933-1934 THROUGH 1952-1953*

Grades	1	2	3	4	5	6	7	8	Total	Kg.	Total
1933-34	192	177	179	174	147	159	132	118	1,278	20	1,298
1934-35	235	137	194	182	156	167	166	126	1,362	46	1,409
1935-36	245	174	137	201	186	158	182	152	1,435	29	1,464
1936-37	217	178	187	140	187	178	168	175	1,430	21	1,451
1937-38	232	171	167	198	146	181	187	179	1,461	27	1,488
1938-39	217	184	167	163	187	174	189	193	1,474	59	1,533
1939-40	242	196	185	155	180	195	178	192	1,523	74	1,597
1940-41	277	194	229	167	170	187	194	190	1,608	139	1,747
1941-42	289	206	213	184	183	199	220	200	1,694	108	1,802
1942-43	244	244	190	208	198	187	204	201	1,676	116	1,792
1943-44	268	211	186	183	209	200	209	185	1,651	108	1,759
1944-45	337	251	201	205	218	222	205	203	1,842	122	1,964
1945-46	342	229	245	223	227	219	235	196	1,916	183	2,099
1946-47	372	259	240	243	244	230	248	219	2,055	161	2,216
1947-48	466	330	316	275	244	271	273	214	2,389	244	2,633
1948-49	472	322	330	238	267	270	284	210	2,393	283	2,676
1949-50	519	388	323	321	300	249	287	277	2,664	277	2,941
1950-51	521	435	367	316	320	284	256	269	2,768	305	3,073
1951-52	488	461	467	347	326	314	293	264	2,980	393	3,353
1952-53	566	452	560	438	359	328	318	301	3,222	376	3,598
Totals	6,741	5,199	4,983	4,561	4,454	4,372	4,428	4,064	38,802	3,091	41,893
% Survival		77.1	95.8	91.5	97.7	98.2	101.3	91.8			

* Records and Reports in City Superintendent's Office.

First grade enrollments over the twenty year period have increased from 192 in 1933-1934 to 566 in 1952-1953. The total enrollments have increased from 1,298 in 1933-1934 to 3,598 in 1952-1953.

Estimates of future school enrollments. Making an accurate estimate of the number of students to be housed in a new school building over a period of years is very difficult. According to an authority and leader in early surveys,

> Predictions in almost any field are hazardous; particularly in a thing as unstable and as subject to unforeseen or unanticipated factors as population.[3]

In spite of the difficulties that may evolve, the increased needs for classroom space and the increased construction costs demand as careful a prediction as is possible based on past experience.

The procedure used by the investigator was to determine first grade enrollments for the next six years by utilizing known birth rate data as a basis. From the comparison of birth rates for each year from 1938 through 1944 with the actual enrollments in the first grades for

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[3] Survey of the Pasadena City Schools, 1931 (Association Report No. 119. Los Angeles, California: Taxpayers' Association), p. 315.

six years later, i.e., 1944 through 1950, a correlation factor was determined. By multiplying this correlation factor by the number of known births within Merced City School District for the years 1945 through 1952, the probable first grade enrollments were predicted for the next eight years. When the first grade figures were projected, the second grade estimates were made by advancing first grade figures according to prevailing rates of survival. In like manner, the second grade was advanced to the third grade, the third grade to the fourth grade, etc.

Table X shows the total number of live births for the years 1938 through 1944 was 2,192 while the first grade enrollments for the years corresponding to six years from birth, 1944-1950, were 3,029. A ratio of 1.38 is shown to exist between the 3,029 first grade entrants and the 2,192 births. This correlation factor means that for every child born within the Merced City School District there will be 1.38 children enter the first grade six years later.

Table XI, page 65, shows the predicted enrollment by grades of the Merced City School District for the school year 1959-1960. From the data presented it is predicted that the enrollment by grades for the school term 1959-1960 will be as follows: 723 in grade one, 579 in grade

TABLE X

LIVE BIRTHS, 1938-1944, AND FIRST GRADE ENROLLMENTS, 1944-1950, MERCED, CALIFORNIA

Live Births By Years		Entered School In	First Grade Enrollment	Correlation
Year	Births	Year		
1938	354	1944	337	
1939	360	1945	342	
1940	370	1946	372	
1941	379	1947	466	
1942	328	1948	472	
1943	431	1949	519	
1944	470	1950	521	
Totals	2,192		3,029	1.38*

Source: School and Vital Statistics Records.

* The ratio of 3,029 to 2,192.

TABLE XI

THE PREDICTED ENROLLMENT FOR MERCED CITY SCHOOLS FOR THE YEAR 1959-1960, MERCED, CALIFORNIA

Live Births By Years		Cor-	Ent-	Enrollment by Grades								
				1	2	3	4	5	6	7	8	
Year	Births	rel- ation	ered School In	E. %	E. %	E. %	E. %	E. %	E. %	E. %	E. %	Total
					B. 77.1	E. 95.8	E. 91.5	E. 97.7	E. 98.2	E. 101.3	E. 91.8	
1945	348	1.38	1951-52	480								
1946	518	1.38	1952-53	715	370							
1947	546	1.38	1953-54	753	551	354						
1948	511	1.38	1954-55	705	581	528	324					
1949	571	1.38	1955-56	788	543	557	483	316				
1950	581	1.38	1956-57	802	608	520	510	472	310			
1951	570	11.38	1957-58	787	618	582	476	498	464	314		
1952	544	1.38	1958-59	751	607	592	533	465	489	470	288	
1953(est.)*	524	1.38	1959-60	723	579	582	542	521	457	495	431	4,330

* Estimation based on the average number of births for last seven years.

two, 582 in grade three, 542 in grade four, 521 in grade five, 457 in grade six, 495 in grade seven, 431 in grade eight. The total enrollment for all grades is estimated to be 4,330.

Summary.

1. The population of the United States showed its greatest percentage of gain, 41.3 per cent, in the decade 1780 to 1790 and gained approximately one third in total population for each decade up to 1860.

2. In 1870 there began a gradual decline in the percentage increase of population of the United States until it reached the all-time low of 7.2 per cent increase for the period 1930 to 1940.

3. A sharp increase in birth rates doubled the percentage increase during the ten year span from 1940 to 1950 when the total population of the United States attained 150,697,000.

4. The average per cent increase in population for the United States during the half century 1900 to 1950 was 15.7.

5. It is predicted that the population of the United States will reach 174,356,000 by 1960.

6. The populations of California and Merced County have risen fairly consistently during the fifty years

between 1900 and 1950, until in 1950 the total populations were 10,490,070 for the state and 69,780 for the county.

7. In the fifty year period, up to and including 1950, California has shown an average per cent of increase of 44.3 per cent and during the same period Merced County had an average of 44.5 per cent of increase.

8. It is estimated that California population will be 15,137,171 in 1960 and Merced County's population will reach 100,832.

9. The birth rates per one thousand population in the United States have increased at irregular rates each year from 1939 to 1947 and reached an all-time high of 26.2 per thousand in 1947.

10. In 1950 the birth rate per one thousand in the United States was 23.5.

11. First grade enrollments in Merced city schools have reached 566 for the 1952-1953 school term. This represents a continuous increase from 1933 with the exception of slight decreases for the terms 1936-1937, 1938-1939, 1942-1943, and 1943-1944.

12. Total school enrollments in Merced city schools have reached 3,598 during the 1952-1953 term, which represents continuous increases from 1933 to 1953 with the exception of slight decreases during the 1936-1937,

1942-1943, and 1943-1944 school terms.

13. At the end of the twenty year period, 1933-1953, the average per cents of survival for pupils going from one grade to another were as follows: first to the second grade, 77.1; second to the third grade, 95.8; third to the fourth grade, 91.5; fourth to the fifth grade, 97.7; fifth to the sixth grade, 98.2; sixth to the seventh grade, 101.3; and seventh to the eighth grade, 91.8.

14. Statistics show a correlation factor of 1.38 between the number of live births from 1938 to 1944 and the number of first grade pupils six years later.

15. It is predicted the enrollment of Merced city schools will be 4,330 in 1959-1960 school term, which will be distributed as follows: 723 in grade one, 579 in grade two, 583 in grade three, 542 in grade four, 521 in grade five, 457 in grade six, 495 in grade seven, and 431 in grade eight.

CHAPTER VI

THE PRESENT SCHOOL PLANT

The existing school plant in any city represents a very substantial outlay of community money. To determine the extent to which this plant can be utilized wisely in a long-range school building plan is one of the major purposes of a school building survey.

> One of the major principles in determining the school building needs of any community is that of planning for maximum use of the present plant.[1]

Modern school building standards and educational programs require facilities of excellent quality if optimum development of youth is to be accomplished. Existing school buildings and sites often range from those well suited for modern school use to others that are quite unsatisfactory. Some buildings may be physically worn out; others may be structurally sound but not built to care adequately for the needs of pupils. School buildings are sometimes found to be too small or located on sites inadequate in size. In other words, the appraisal of present school buildings or classrooms requires an answer to this question, "How well

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1 "American School Buildings," Twenty-seventh Yearbook (Washington, D.C.: American Association of School Administrators, 1949), p. 56.

placed and how good are the present buildings?"[2]

> Although no completely objective yardsticks can be applied to a particular building to say specifically whether it ought to be abandoned for school purposes, rehabilitated, or continued as is . . ., there are a number of criteria such as age, size, size of site, safety, lighting and the like which aid greatly in determining the worth of any particular building.[3]

Score cards, based on carefully formulated standards embracing such criteria as site, safety, etc., have been devised for evaluating school buildings in terms of their adequacy in providing desirable facilities. Methods for evaluating the utilization of school buildings also have been developed. This chapter presents a report of these two types of evaluation for the public school plant of the Merced City School District.

Basic data regarding the school plant. The public schools of Merced consist of eight elementary school buildings for grades below the seventh and one intermediate school building for grades seven and eight. In addition to these nine buildings the total school plant of Merced includes a recently constructed modern administration building with offices for the administrators, a

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[2] "American School Buildings," loc. cit.

[3] Ibid., p. 58.

warehouse and maintenance building, a large bus garage, and two parcels of land.

Basic data concerning the public school buildings in Merced are shown in Table XII. According to the information presented, five of these buildings--Luther Burbank, Franklin, John C. Fremont, Herbert Hoover, and Sheehy--were constructed in 1950. One building, Charles Herbert Wright, was completed up to its present size over a period of three years, 1946 to 1949. The oldest buildings include Joseph LeConte, Galen Clark, and John Muir which were constructed in 1908, 1920, and 1921, respectively. There are a total of eighty-eight permanent type classrooms plus twelve temporary structures used for class purposes. Using the formula, "five acres plus an additional acre for each one hundred pupils of ultimate enrollment,"[4] it was found that with thirty-two pupils allotted to a room only two schools had expansion possibilities on their present sites, Herbert Hoover and Margaret Sheehy.

Method of evaluating the Merced city school plant. Since six of the nine buildings composing the school plant were built within the last six years on sites approved by the California State Department of Education and according

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[4] Ibid., p. 75.

TABLE XII

BASIC DATA CONCERNING THE PRESENT SCHOOL BUILDINGS, MARCH, 1953
(EXCLUSIVE OF KINDERGARTENS)

School	Date of Const.	No. of Classrooms (Permanent)	Acres in Site	Acres for Play	Temporary Classrooms	Expansion Possibilities	Play Courts and Apparatus Satisfactory
Burbank, 1-3	1950	4	6	5	--	No	No
Clark, K-6	1920	20	5	4	4	No	Yes
Franklin, K-6	1950	4	6	5	2	No	Yes
Fremont, K-6	1950	8	8	7	--	No	No
Hoover, 7-8	1950	10	20	18	2	Yes	No
LeConte, K-4	1908	4	6	5	--	No	Yes

TABLE XII (continued)

BASIC DATA CONCERNING THE PRESENT SCHOOL BUILDINGS, MARCH, 1953,
(EXCLUSIVE OF KINDERGARTENS)

School	Date of Const.	No. of Classrooms (Permanent)	Acres in Site	Acres for Play	Temporary Classrooms	Expansion Possibilities	Play Courts and Apparatus Satisfactory
Muir, K-6	1921	17	7	5	--	No	Yes
Sheehy, K-6	1950	8	9	8	2	Yes	No
Wright, K-6	4 rms., 1946 9 rms., 1949	13	7	6	2	No	Yes

to plans specified by that department, evaluation was confined to the three oldest buildings, John Muir, Joseph LeConte, and Galen Clark.

Each of these three buildings was carefully examined by five judges composed of three principals, the City Superintendent of Schools, and the writer of this treatise. The buildings and sites were scored according to the Strayer-Engelhardt Score Card for Elementary Buildings.[5] On this score card a perfect building would score one thousand points distributed among eight general divisions: Site, Building, Service System, General Classrooms, Kindergarten, Special Activity Rooms, General Service Rooms, and Administration Rooms. Each of these divisions is subdivided into a number of items which are desirable in providing a modern school plant.

> It is not possible to fix an absolute minimum score for a usable school building with the corollary that all buildings scoring below that minimum be recommended for immediate abandonment.[6]

In spite of this known fact, most building specialists agree that buildings scoring less than four hundred points are, as a rule, so inferior that they should be

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[5] George D. Strayer and N. L. Engelhardt, Standards for Elementary School Buildings (New York: Teachers' College, Columbia University, 1933), p. 7.

[6] "American School Buildings," op. cit., p. 58.

abandoned as rapidly as possible.[7] Survey specialists also recommend that buildings scoring 85 per cent or more of the total score, 850 points or more, be rated "excellent"; 70 per cent to 84.9 per cent of the total score, seven hundred to 849 points, be rated "good"; 55 per cent to 69.9 per cent of the total score, 550 to 699 points, be rated "fair"; 40 per cent to 54.9 per cent of the total score, four hundred to 549 points, be rated "poor"; and those scoring less than 40 per cent of the total score, less than four hundred points, be rated "unsatisfactory."[8]

Table XIII shows the scores allocated by the judges to the John Muir School building which 696 points out of a possible one thousand and was rated "fair."

A breakdown of scoring in the major items of the score card shows that in comparison to the number of points allotted to a perfect building, this particular building scored the following per cents of a perfect score: site, 75 per cent; building, 78 per cent; service systems, 59.1 per cent; general classrooms, 69.8 per cent; kindergarten, 54.3 per cent; special activity rooms, 70 per

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[7] Ibid., p. 59.

[8] "American School Buildings," loc. cit.

TABLE XIII

SCORES ALLOTTED TO THE JOHN MUIR ELEMENTARY SCHOOL BUILDING IN COMPARISON WITH THE MAXIMUM POSSIBLE SCORE OF ONE THOUSAND FOR AN IDEAL ELEMENTARY PLANT

	Maximum Score Possible		Allotted Score	
I. Site				
A. Selection	15		10	
B. Location	30		20	
C. Topography	20		15	
D. Provisions for use	35		30	
		100		75
II. Building				
A. Placement	20		18	
B. Gross Structure	90		68	
C. Internal Structure	50		39	
		160		125
III. Service Systems				
A. Heating and Ventilation	50		27	
B. Fire Protection System	30		15	
C. Cleaning System	15		10	
D. Artificial Lighting System	20		12	
E. Electric Service System	10		8	
F. Electrical Teaching Aids	10		8	
G. Water Supply System	20		13	
H. Toilet System	30		18	
I. Mechanical Service System	3		2	
J. Locker Service	15		3	
K. Laundry Service	2		0	
L. Storage Service	20		17	
		225		133
IV. General Classrooms				
A. Location and Connection	35		30	
B. Construction and Finish	90		59	
C. Illumination	40		29	
D. Movable Equipment	40		25	
		205		143

TABLE XIII (continued)

SCORES ALLOTTED TO THE JOHN MUIR ELEMENTARY SCHOOL BUILDING IN COMPARISON WITH THE MAXIMUM POSSIBLE SCORE OF ONE THOUSAND FOR AN IDEAL ELEMENTARY PLANT

	Maximum Score Possible		Allotted Score	
V. Kindergarten	35		19	
VI. Special Activity Rooms				
*A. Art Room	10		10	
*B. Home Economics Room	10		10	
*C. Industrial Arts Room	10		10	
D. Library	30		25	
E. Music Room	10		3	
F. Science Room	10		0	
G. Other Rooms	10		5	
		125		90
VII. General Service Rooms				
A. Auditorium or Assembly	50		39	
B. Gymnasium	25		11	
C. Play Rooms or Shelters	10		0	
*D. Swimming Pool	10		10	
E. Cafeteria or Lunch Room	30		30	
		125		90
VIII. Administration Rooms				
A. Administration Offices	25		22	
B. Teacher's Rooms	10		8	
C. Health Service Rooms	15		10	
D. Custodial Service Rooms	10		8	
		60		48
Totals		1,000		696

* Due to the nature of the school, these services are not needed, therefore, a penalty is not assessed.

cent; general service rooms, 72 per cent; and administration rooms, 80 per cent.

All major items of the score card rate "fair" or "good" with the exception of the kindergarten room which rated "poor." Factors contributing to this low rating were probably created by the fact that the room in use was originally constructed for general classroom purposes. Lacking were several of the features that ordinarily compose the modern kindergarten,[9] such as: a private exit to a separate play area and lack of a private toilet room. Another objectionable feature was the fact that the windows are located on the west side, which does not give access to the proper amount of morning natural light. It was not felt by the judges that these adverse factors were outstanding enough to abandon its use as a kindergarten room, but rather such inefficiencies could be amended through some repair work and additions.

A further analysis of the minor items composing the eight major classifications of the score card shows insufficient scores on the fire protection system, the locker service, the music room, the gymnasium, the play rooms or shelters, and the science room.

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[9] Ibid., p. 88.

The poor rating applied to the fire protection system is probably due to the similarity of the bell signal used for the fire alarm and the regular class bell. It was also felt by the judges that there was a failure to provide adequate fire-fighting apparatus located in accessible places.

The locker service for both the teacher and students was scored low since the only provisions made were the use of the old-fashioned cloak room for hanging clothes and desk compartments for books.

The use of the auditorium for a music room was given a low rating since it is the opinion of authorities that "even in relatively small elementary schools"[10] a separate room should be provided. This is especially considered necessary when the philosophy of the Merced city schools is to provide both instrumental and vocal music from the fourth through the eighth grades.[11]

There is not a great emphasis on science for grades one through six in this school system, however the judges felt that since it was considered a part of the educational program, either each room should be equipped with

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10 Ibid., p. 103.

11 Records in the City Superintendent's Office.

a sink, gas connections, and a demonstration table, or else a separate room should be properly equipped and designated as a science room. Neither situation exists at John Muir School, therefore, the judges' evaluation shows no score for this item.

Likewise, the allotted score for play rooms or shelters was rated zero since neither were provided.

The gymnasium item was scored less than satisfactory since the gymnasium is now being used as a cafeteria serving area and it was considered by the judges to be unsuited for both purposes.

Full credit was given for the lack of an art room, a home economics room, an industrial arts room, and a swimming pool. This was decided as fair evaluation since every teacher in Merced schools is expected to teach art within their own room which contains necessary equipment and facilities.[12] The other type of special rooms were not considered essential parts of a school limited to grades kindergarten through sixth.

Table XIV shows the scores allocated by the judges to the Galen Clark School building, which scored 665 points out of a possible one thousand and was rated "fair."

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[12] Records in the City Superintendent's Office.

TABLE XIV

SCORES ALLOTTED TO THE GALEN CLARK ELEMENTARY SCHOOL BUILDING IN COMPARISON WITH THE MAXIMUM POSSIBLE SCORE OF ONE THOUSAND FOR AN IDEAL ELEMENTARY PLANT

	Maximum Score Possible		Allotted Score	
I. Site				
A. Selection	15		14	
B. Location	30		25	
C. Topography	20		16	
D. Provisions for use	35		18	
		100		73
II. Building				
A. Placement	20		18	
B. Gross Structure	90		74	
C. Internal Structure	50		24	
		160		116
III. Service Systems				
A. Heating and Ventilation	50		31	
B. Fire Protection System	30		15	
C. Cleaning System	15		13	
D. Artificial Lighting System	20		15	
E. Electric Service System	10		6	
F. Electrical Teaching Aids	10		6	
G. Water Supply System	20		17	
H. Toilet System	30		23	
I. Mechanical Service System	3		2	
J. Locker Service	15		0	
K. Laundry Service	2		0	
L. Storage Service	20		12	
		225		140
IV. General Classrooms				
A. Location and Connection	35		30	
B. Construction and finish	90		74	
C. Illumination	40		20	
D. Movable Equipment	40		34	
		205		158

TABLE XIV (continued)

SCORES ALLOTTED TO THE GALEN CLARK ELEMENTARY SCHOOL BUILDING IN COMPARISON WITH THE MAXIMUM POSSIBLE SCORE OF ONE THOUSAND FOR AN IDEAL ELEMENTARY PLANT

	Maximum Score Possible		Allotted Score	
V. Kindergarten	35		32	
VI. Special Activity Rooms				
*A. Art Room	10		10	
*B. Home Economics Room	10		10	
*C. Industrial Arts Room	10		10	
D. Library	30		10	
E. Music Room	10		3	
F. Science Room	10		0	
G. Other Rooms	10		5	
		90		48
VII. General Service Rooms				
A. Auditorium or Assembly	50		38	
B. Gymnasium	25		0	
C. Play Rooms or Shelters	10		0	
*D. Swimming Pool	10		10	
E. Cafeteria or Lunch Room	30		29	
		125		77
VIII. Administration Rooms				
A. Administration Offices	25		10	
B. Teachers' Rooms	10		7	
C. Health Service Rooms	15		4	
D. Custodial Service Rooms	10		2	
		60		23
Totals		1,000		665

* Due to nature of the school these services are not needed, therefore, a penalty is not assessed.

A breakdown of scoring in the major items of the score card shows that in comparison to the number of points allotted to an ideal building, this school scored as follows: site, 73 per cent; building, 72.5 per cent; service systems, 62.2 per cent; general classrooms, 77 per cent; kindergarten, 91.4 per cent; special activity rooms, 53.3 per cent; general service rooms, 61.6 per cent; administration rooms, 38.3 per cent.

All major items of the score card were rated "fair" or "good" with the exception of the special activity and the administration rooms which rated "poor" and "unsatisfactory" respectively.

According to the judges, factors contributing to the low score in special activity rooms were threefold in nature: first, the library room was considered unsatisfactory since it was merely a shelving space occupying a regular classroom; second, no provision for a music room was made, but instead intermittent use was made of the auditorium; third, there was not provided a science room nor necessary facilities within the rooms for teaching science.

In the judgment of the scorers, the administration offices, health service rooms, and custodial service rooms were too small and inadequate.

The lack of play rooms or shelters, a gymnasium, locker service, and laundry service contributed to the placement of zero score for these items.

The low score on the internal structure of the building was explainable when the age of the structure is considered, plus the normal wear expected and the outmoded designing.

The fire protection system was not considered adequate since the alarm signal used sounded too much like the regular class bells, and there was insufficient fire fighting apparatus provided.

No penalty was assessed for the lack of an art, home economics, or industrial arts room since the educational program offered by this school only extends through the sixth grade, and the philosophy of the local school authorities does not include a need for such rooms.[13]

Table XV shows the scores allocated by the judges to the Joseph LeConte School building which scored 534 points out of a possible one thousand, and was rated "poor."

A breakdown of scoring in the major items of the score card shows that in comparison with the number of points allotted to a perfect building, Joseph LeConte

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[13] Records in the City Superintendent's Office.

TABLE XV

SCORES ALLOTTED TO THE LECONTE ELEMENTARY SCHOOL BUILDING IN COMPARISON WITH THE MAXIMUM POSSIBLE SCORE OF ONE THOUSAND FOR AN IDEAL ELEMENTARY PLANT

	Maximum Score Possible		Allotted Score	
I. Site				
A. Selection	15		5	
B. Location	30		6	
C. Topography	20		16	
D. Provisions for use	35		30	
		100		57
II. Building				
A. Placement	20		10	
B. Gross Structure	90		43	
C. Internal Structure	50		25	
		160		78
III. Service Systems				
A. Heating and Ventilation	50		29	
B. Fire Protection System	30		14	
C. Cleaning System	15		11	
D. Artificial Lighting System	20		15	
E. Electric Service System	10		7	
F. Electrical Teaching Aids	10		3	
G. Water Supply System	20		12	
H. Toilet System	30		12	
I. Mechanical Service System	3		1	
J. Locker Service	15		5	
K. Laundry Service	2		0	
L. Storage Service	20		9	
		225		118
IV. General Classrooms				
A. Location and Connection	35		14	
B. Construction and finish	90		63	
C. Illumination	40		28	
D. Movable Equipment	40		20	
		205		125

TABLE XV (continued)

SCORES ALLOTTED TO THE LECONTE ELEMENTARY SCHOOL BUILDING IN COMPARISON WITH THE MAXIMUM POSSIBLE SCORE OF ONE THOUSAND FOR AN IDEAL ELEMENTARY PLANT

	Maximum Score Possible	Allotted Score
V. Kindergarten	35	29
VI. Special Activity Rooms		
*A. Art Room	10	10
*B. Home Economics Room	10	10
*C. Industrial Arts Room	10	10
*D. Library	30	30
E. Music Room	10	0
*F. Science Room	10	10
G. Other Rooms	10	0
	90	70
VII. General Service Rooms		
A. Auditorium or Assembly	50	0
*B. Gymnasium	25	25
C. Play Rooms or Shelters	10	0
*D. Swimming Pool	10	10
E. Cafeteria or Lunch Room	30	5
	125	40
VIII. Administration Rooms		
A. Administration Offices	25	5
B. Teachers' Rooms	10	6
C. Health Service Rooms	15	0
D. Custodial Service Rooms	10	10
	60	21
Totals	1,000	534

* Due to the nature of the school these services are not needed, therefore a penalty is not assessed.

School building scored as follows: site, 57 per cent; building, 48.8 per cent; service systems, 52.4 per cent; general classrooms, 61 per cent; kindergarten, 82.9 per cent; special activity rooms, 77.7 per cent; general service rooms, 32 per cent; and administration rooms, 35 per cent.

All major items of the score card rated "fair" or "good" with the exception of the building, the service systems, the general service rooms, and the administration rooms. The building and service systems were rated "poor" while the general service rooms and the administration rooms were rated "unsatisfactory."

Since the building was constructed some forty-five years ago it contained many undesirable features in spite of the fact that much time and money has been spent to make it desirable. Entrance to the classroom portion of the building is made by dangerous steps since the ground floor is a basement. The classrooms were poorly connected and located with wasted instructional space and much unused space to be heated. The natural light area in two of the four classrooms comes from one side, the east, and the other two classrooms gain natural light from one direction, the west. This causes great inconsistency in the amount of light received through light areas. No rooms are

acoustically treated with results in sound control problems.

The location of the school in reference to the accessibility of the designated attendance zone was rated low since the principal stated that difficulty exists in keeping regular sized classes because this had become a "grandfather area" of the town.

Under the major item, service systems, nearly all minor items were rated low although evidence existed of numerous efforts to renovate and rectify poor conditions. The building was heated with an old-fashioned hot air furnace, which required constant adjustments to keep room temperatures satisfactory for the rooms served. Exits for fire escapes are clearly marked, but children must go down a series of steps to get outside; thereby further hazards are created plus a possibility of congestion in case of emergency. The toilet system's principal deficiency was the old-fashioned fixtures plus the necessity for children to go outside in order to reach them. The water supply system was scored low due mainly to the fact there were not sufficient number of drinking fountains.

The school was entirely lacking in such features as a music room, play room or shelters, an assembly room, and health service rooms. A small principal's office had been provided but was inadequate in size and the arrangement was unsatisfactory.

Utilization of the school plant. In the study of the utilization of the school buildings comprising Merced City School District two types of utilization were considered, classroom use and pupil-station use. If during a given period of time a room having a capacity of thirty-two pupils is used by a class of fifteen pupils, its room utilization is 100 per cent, since it is obvious that a second class could not occupy the room during that same period of time. With respect to pupil-station use, however, the room is only 50 per cent utilized. Obviously there would be maximum room and pupil-station use if every classroom were filled to capacity the entire day. Since it is impossible to completely control the size of classes, it is not practicable to establish this maximum standard of use.

Room utilization of the classrooms composing this school system was relatively easy to determine since the measurement could be made by comparing the number of classrooms actually used with the number of satisfactory rooms available. Kindergarten rooms as well as temporary structures were excluded from the survey of buildings housing grades below the seventh. However, due to the departmentalization of instruction with its changing classes at the seventh and eighth grade school, Herbert

Hoover, it was decided to figure its utilization separately and include all temporary structures. It was felt that this arrangement would probably show the extent of the program desired by the local administration. It will be of significance to the reader that throughout the remainder of this survey the local expressions "intermediate school" will be used to refer to the Herbert Hoover School, and "elementary school" will refer to schools housing grades below the seventh.

In determining the total pupil capacity of the buildings, the local concensus of opinion is that thirty-two be used as a maximum number of pupils for each classroom. This figure remained constant for all regular classrooms throughout the system.

Table XVI shows the room and capacity use of the buildings housing grades below the seventh, excluding kindergartens. Percentages of room and pupil-station usages were derived by comparing rooms used with the number available and pupil-stations used with the number available.

All elementary schools show 100 per cent room utilization with Galen Clark, Franklin, John C. Fremont, Margaret Sheehy, and Wright showing over 100 per cent pupil-station utilization. Especially heavy pupil-station utilization is indicated by the 111.0 per cent

TABLE XVI

ROOM AND CAPACITY USE OF MERCED SCHOOL BUILDINGS
GRADES ONE-SIX, 1952-1953

School	Grades	Classrooms* Number	Classrooms* Number Used	Enrollment March, 1953	Total Pupil Capacity**	Unused Capacity	% of Use Room	% of Use Pupil Stations
Burbank	1-3	4	4	95	128	33	100	74.2
Galen Clark	1-6	20	20	708	640	-68	100	111.0
Franklin	1-6	4	4	175	128	-47	100	136.7
Fremont	1-6	8	8	266	256	-10	100	103.9
LeConte	1-4	4	4	115	128	13	100	89.8
John Muir	1-6	17	17	499	544	45	100	91.7
Sheehy	1-6	8	8	335	256	-79	100	130.9
Wright	1-6	13	13	436	416	-20	100	104.8
Totals		78	78	2,629	2,496	-133	100	105.3

* Includes only permanent classrooms.

** Based on thirty-two pupils per room.

usage at Galen Clark, the 136.7 per cent at Franklin, and the 130.9 per cent usage at Margaret Sheehy. The 74.8 per cent pupil-station utilization at Luther Burbank and the 89.8 per cent utilization at Joseph LeConte show these are least crowded.

In elementary schools of the type represented on the preceding table, where pupils remain in the same room for all classes, "a room use of 90 per cent and a pupil use of 75 per cent are acceptable standards."[14] Using this as a basis for critical judgment, all schools, with the exception of Joseph LeConte and Burbank, indicate overcrowding and a possible need for additional classroom space. Particularly is this true of Franklin, Galen Clark, and Margaret Sheehy.

Table XVII shows the pupil-station utilization for each classroom at the Herbert Hoover intermediate school. When the accepted standard of 65 to 70 per cent pupil-station utilization[15] is compared to the 95.9 per cent average usage of all regular classrooms, overcrowding is evident. Likewise, each individual room shows overcrowding since the range is from 78.9 per cent to 107.9 per

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14 "American School Buildings," op. cit., p. 60.

15 Walter S. Monroe, editor, Encyclopedia of Educational Research (New York: The Macmillan Company, 1950), p. 1116.

TABLE XVII

HOOVER SCHOOL PUPIL-STATIONS USED, 1952-1953

Room Number	Mon.	Tues.	Wed.	Thurs.	Fri.	Total Usage	Usage Provided	Per Cent of Usage
Room 1	204	174	210	211	174	973	1,120	86.8
Room 2	226	226	226	198	200	1,076	1,120	96.1
Room 3	208	208	208	208	208	1,040	1,120	92.9
Room 4	188	262	225	262	262	1,199	1,120	107.1
Room 5	198	232	203	232	235	1,100	1,120	98.2
Room 10	218	184	218	223	184	1,027	1,120	91.7
Room 11	210	244	206	244	210	1,114	1,120	99.5
Room 12	166	236	236	196	236	1,070	1,120	95.5
Room 13	218	179	253	253	253	1,156	1,120	103.2
Room 14	256	221	256	219	256	1,208	1,120	107.9
Room 15	218	218	252	250	182	1,120	1,120	100.0
Annex 1*	236	212	176	210	166	1,000	1,120	89.3
Annex 2*	206	171	166	173	166	884	1,120	78.9
Totals	2,754	2,767	2,835	2,879	2,732	13,967	14,560	95.9

* Temporary classrooms.

cent utilization of pupil-stations provided.

Table XVIII shows the daily room utilization of each regular classroom at the Herbert Hoover School. Compared with the recommended standard of 80 to 85 per cent room utilization,[16] ten of the thirteen classrooms show over-usage since they are occupied from 85.7 per cent to 97.1 per cent of the time. The slight under-standard usages shown by rooms numbered A-1 and A-2, 77.1 per cent and 74.3 per cent, are probably explained by the fact that they are temporary structures with inferior qualities as compared with the permanent rooms. Only one permanent room, number one, with 74.3 per cent usage, shows sub-normal occupancy.

Summary.

1. The public school plant of Merced City School District consists of eight separate buildings for the elementary grades below the seventh, one building for the intermediate grades seven and eight, a newly constructed administration building, a warehouse and maintenance building, a large bus garage, and two parcels of land.

2. Classroom facilities in the Merced city schools, exclusive of kindergartens, include eighty-eight

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16 Monroe, loc. cit.

TABLE XVIII

HOOVER SCHOOL DAILY ROOM UTILIZATION, 1952-1953

Room Number	Periods Used Each Day					Total Periods Used Weekly	Total Periods Provided	% of Usage
	Mon.	Tues.	Wed.	Thurs.	Fri.			
Room 1	5	4	6	6	5	26	35	74.3
Room 2	7	7	7	5	6	32	35	91.4
Room 3	6	6	6	6	6	30	35	85.7
Room 4	6	7	7	7	7	34	35	97.1
Room 5	5	7	6	7	7	32	35	91.4
Room 10	7	6	7	7	6	33	35	94.3
Room 11	6	7	6	7	6	32	35	91.4
Room 12	5	7	7	7	7	33	35	94.3
Room 13	5	5	7	7	7	31	35	88.6
Room 14	7	6	7	6	7	33	35	94.3
Room 15	6	6	7	6	5	30	35	85.7
Annex 1*	6	6	5	6	4	27	35	77.1
Annex 2*	6	5	5	5	5	26	35	74.3

* Temporary classrooms.

permanent classrooms and twelve temporary structures used as classrooms.

3. Six of the school buildings are modern in design and were constructed within the last six years according to specifications of the California State Department of Education.

4. The oldest buildings include Joseph LeConte, Galen Clark, and John Muir, which were constructed in 1908, 1920, and 1921, respectively.

5. Only two schools have expansion possibilities on their present sites, Herbert Hoover and Margaret Sheehy.

6. The three oldest buildings, Joseph LeConte, Galen Clark, and John Muir were evaluated by a committee of five with the Strayer-Engelhardt Score Card for Elementary Buildings as a guide.

7. The John Muir School building scored 696 points out of a possible one thousand and was rated "fair."

8. The Galen Clark School building scored 665 points out of a possible one thousand, and was rated "fair."

9. The Joseph LeConte School building score 534 points out of a possible one thousand and was rated "poor."

10. In the study of the utilization of the school buildings comprising Merced City School District two types

of utilization were considered, classroom use and pupil-station use.

11. A pupil-teacher ratio of thirty-two for grades one through eight was selected by the local school administration as a maximum room capacity.

12. The utilization of Merced school buildings, grades one through six, excluding kindergartens, shows the following percentages of respective room and pupil-station usages: Luther Burbank, 100 per cent and 74.2 per cent; Galen Clark, 100 per cent and 136.7 per cent; John C. Fremont, 100 per cent and 103.9 per cent; Joseph LeConte, 100 per cent and 89.8 per cent; John Muir, 100 per cent and 91.7 per cent; Margaret Sheehy, 100 per cent and 130.9 per cent; Charles Herbert Wright, 100 per cent and 104.8 per cent.

13. The respective percentages of rooms and pupil-stations utilized in the permanent classrooms of the Herbert Hoover School, seventh and eighth grades, are as follows: room number one, 74.3 per cent and 86.8 per cent; room number two, 91.4 per cent and 96.1 per cent; room number three, 85.7 per cent and 92.9 per cent; room number four, 97.1 per cent and 107.1 per cent; room number ten, 94.3 per cent and 91.7 per cent; room number eleven, 91.4 per cent and 99.5 per cent; room number twelve, 94.3 per

cent and 95.5 per cent; room number thirteen, 88.6 per cent and 103.3 per cent; room number fourteen, 94.3 per cent and 107.9 per cent; and room number fifteen, 85.7 per cent and 100 per cent.

CHAPTER VII

SUMMARY AND CONCLUSIONS

In the six preceding chapters, facts have been presented in text and tables which present the problems and support the conclusions made thus far in this survey. A complete realization of the magnitude of the problems and a full appreciation of the conclusions reached cannot be had without the reading of these preceding six chapters. Therefore, this summary chapter assumes critical reading of that which has gone before and does not purport to repeat all the findings and conclusions. However, it is considered advisable, for the convenience of the reader and for the sake of emphasis, to bring the main facts together before the final recommendations are made.

The problem outlined.

1. The purpose of this survey was to determine the total number of classrooms needed for the next six years in the Merced City School System based on population and enrollment trends.

2. The four major areas studied were: (a) the community and its people, (b) the educational program of the Merced city schools, (c) the school population, and (d) the present schoolhousing situation.

3. Data for the survey were obtained from the offices of the County and City Superintendents of Schools, the Merced City Clerk, the Merced County and City Chambers of Commerce, the City Planning Commission, the United States Census Bureau, the State Department of Public Health, the Merced County Library, and the California State Library.

Review of related studies. The three major surveys used as a guide for this survey were: (1) the survey of Sequoia Union High School by John C. Almack, (2) the Santa Ana School Housing Survey by Osman R. Hull and Willard S. Ford, and (3) the Stockton School Survey by Jesse B. Sears.

The community.

1. Merced City, the county seat of Merced County, is a fast-growing agriculture center with up-to-date transportation facilities and a wide diversity of recreational, educational, religious, and social programs.

2. Merced's population as reported by the last seven federal censuses has shown an average growth of 42.6 per cent and has increased from 2,009 in 1890 to 15,278 in 1950.

3. It is estimated that by 1960 the population of this city will reach 21,776 and by 1970, 31,052.

4. The northwestern, northeastern, and southwestern areas of Merced show large concentrations of new homes as a result of the 1,343 residences constructed from 1947 to 1952.

The educational program of the Merced City public schools.

1. Since the first public schoolhouse was constructed in 1874, the city schools have increased to nine in number manned by a staff of 114 teachers, ten consultants or special teachers, four supervising principals, four teaching principals, a District Superintendent, and about twenty-five non-certificated employees.

2. In general, the present plan of organization is for the operation of separate schools for kindergarten through sixth grades and a large central seventh and eighth grade school.

3. Modern methods of instruction are administered by the single teacher for a class plan for grades kindergarten through six and a core-curriculum plan for grades seven and eight.

The school population.

1. The first grade enrollments for the Merced city schools have shown an increase almost each year from the 195 total in 1933-1934 to the 566 in the 1952-1953 term.

2. Total school enrollments for grades kindergarten through eight have shown almost continual year by year increases from the 1,298 enrollment in 1933-1934 school term to the 3,598 during 1952-1953.

3. It is predicted the enrollments of these schools will be 4,330 in 1959-1960 which will be distributed as follows: 723 in grade one; 579 in grade two; 582 in grade three; 542 in grade four; 521 in grade five; 457 in grade six; 495 in grade seven; and 431 in grade eight.

The present school plant.

1. The public school plant of this district consists of eight separate buildings for the elementary grades below the seventh, one building for the intermediate grades seven and eight, a newly constructed administration building, a combination warehouse and maintenance building, a large bus garage, and two parcels of land.

2. The application of the Strayer-Engelhardt score card showed only one of the present buildings, the Joseph LeConte School, rated "poor" with a score of 534.

3. Considering 90 per cent room usage and 75 per cent pupil-station usage as a standard, the various buildings for grades one through six all show heavy utilization.

4. Overcrowding of regular classrooms is evident at the seventh and eighth grade school, Herbert Hoover.

5. Only two schools have expansion possibilities on their present sites, Herbert Hoover and Margaret Sheehy.

CHAPTER VIII

THE RECOMMENDED SCHOOL PLANT

The first seven chapters of this survey contain detailed information regarding the community of Merced, its public school educational program, the school population, and the condition and use of its present school plant. From a study of this detailed information, certain major conclusions have been formulated.

Major conclusions.

1. Merced City will experience a continued increase in population with continued residential growth.

2. Total enrollments will continue to increase in the public schools for the next six years reaching a peak in the 1959-1960 school term when there will be 926 in grades seven and eight and 3,404 in grades one through six.

3. The present nine buildings with their eighty-eight permanent classrooms will continue in use for some time yet.

4. The pupil-teacher ratio of thirty-two pupils will continue to be used as a basis for determining maximum capacity of a class.

5. The same type of organization for schools, the same auxiliary services, and the same modern methods of

instruction will predominate for the next decade.

6. The intermediate school, Herbert Hoover, will continue to operate for the seventh and eighth grades with a core-curriculum plan of instruction adjusted to a seven period day.

Recommendations. In light of the foregoing major conclusions and upon the basis of a detailed analysis of the data in the preceding chapters, the following recommendations are made:

1. It is recommended that plans be made to house 3,404 children from grades one through six by the years 1959-1960 which will necessitate the construction of twenty-eight additional classrooms.

This recommendation is made on the basis of mathemmatical deductions utilizing thirty-two pupils to a room and taking into consideration the seventy-eight permanent classrooms now available for grades one through six.

2. It is recommended that plans be made to house 926 students in the seventh and eighth grades by the years 1959-1960 which will necessitate the construction of eight additional classrooms at the Herbert Hoover School.

This recommendation is mathematically derived through application of the formula:

$$\text{Interchangeable Teacher Stations} = \frac{\text{Enrollment}}{\frac{8}{\text{Daily period}}} \neq 12$$

In this formula 926 is used as the enrollment and seven is considered the number of periods. A total of eighteen interchangeable teacher stations are found to be needed, which would mean eight additional rooms above the ten now available.

Further studies needed. In addition to the data submitted in this survey, it is felt that four additional studies need to be made:

1. The ability of the school district to support an expanded building program needs much careful study and planning.

2. An extensive study should be made regarding the residential distribution of children over the district so as to determine where additional classrooms should be located.

3. The need for special rooms such as art rooms, music rooms, multi-purpose rooms, and science rooms should be investigated.

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1 "American School Buildings," Twenty-seventh Yearbook of the American Association of School Administrators (Washington, D.C.: 1949), p. 70.

4. The effect of the parochial schools in the city of Merced on the predicted enrollment should be considered before the launching of an extended building program.

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